

## CLAIMS

1. A method for identifying a test compound having antioxidant activity, said method comprising the steps of:
  - (a) administering a test compound to a homozygous transgenic mouse in which the genes encoding Manganese Superoxide Dismutase (MnSOD) have been inactivated;
  - (b) observing phenotype of the mouse to which the test compound was administered of step (a);
  - (c) identifying a test compound having antioxidant activity where the phenotype of the mouse to which the test compound has been administered of step (a) is closer to a normal phenotype than the phenotype of the homozygous transgenic mouse to which the test compound has not been administered.
2. The method of claim 1 wherein said homozygous transgenic mouse is a SodCJE(-/-).
3. The method of claim 1 wherein in step (c), comparison is also made with observations of isogenic mice of similar age which have been treated with an antioxidant which is known not to cross the blood brain barrier.
4. The method of claim 1 wherein in step (c), comparison is also made with observations of isogenic mice of similar age which have been treated with an antioxidant which is known to cross the blood-brain barrier.

5. The method of claim 1 wherein said mouse to which the test compound is administered is also treated with Manganese 5,10,15,20-tetrakis(4-benzoic acid) porphyrin (MnTBAP) daily from three days of age forward.
6. The method of claim 1 wherein the the phenotype in step (b) include detecting of expression of apoptotic genes.
7. The method of claim 1 wherein the observations in step (b) include detection of expression of apoptotic genes.
8. The method of claim 1 wherein said homozygous transgenic mouse to which the test compound is administered is also treated with MnTBAP (5, 10, 15, 20 - tetrakis 4-(benzoic acid) porphyrin) prepared by the process of
  - (a) dissolving MnTBAP in dimethylformamide,
  - (b) refluxing the dissolved MnTBAP overnight at 80°C in the presence of excess manganese chloride while bubbling with room air,said product being administered to said mouse daily from three days of age forward.